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AN INTERGENERIC HYBRID FLYCATCHER (*CONTOPUS* × *EMPIDONAX*) FROM IDAHO

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On June 20, 1948, Burleigh collected a flycatcher in underbrush bordering a stream in a ravine near Moscow, Idaho. When sent with other specimens to the Fish and Wildlife Service at the U. S. National Museum it was examined by Dr. John W. Aldrich, who identified it as a hybrid *Contopus virens* (=*sordidulus*) × *Empidonax traillii*. The press of other work has prevented Burleigh from publishing a report on this interesting bird prior to now. Aldrich called the specimen to Short's attention in 1963. The senior author had accumulated considerable data concerning wood pewees, and with specimens of both species available to him in the national collection, he began collaboration on this report with Burleigh. The latter noted that adjacent to the ravine where he secured the specimen was a low ridge covered with ponderosa pines. Thus, habitats of the two species were found adjacent to the site where the bird was taken. The specimen proved to be a male in plumage not badly worn for a late June bird. We confirm that the specimen is a hybrid between the distinctive western wood pewee and Traill's flycatcher. The only other published report concerning a definite tyrannid hybrid appears to be that of W. Meise describing a *Tyrannus* × *Empidonomus* cross (1949: 61–83 in the Festschrift zum 60 Geburtstag von Erwin Stresemann).

We wish to express our gratitude to Dr. John W. Aldrich for originally identifying the hybrid, for calling the specimen to the senior author's attention, and for helpful comments and critical perusal of the manuscript. We thank Dr. Allan R. Phillips for supplying references, and for valuable suggestions benefiting our investigation and this report, and Dr. Ned K. Johnson for helpful comments concerning the manuscript.

Description and Comparison

General Appearance: In the sum of its color features the hybrid is more like *Empidonax traillii* than *Contopus sordidulus.* However, it is grayer above and duskier, with less yellowish, below than *traillii.* The specimen is intermediate between the two species in size and proportions. It is distinctive in both size and color; considering all aspects of its coloration, it is not encompassed within the range of variation of *traillii.*

Head Color: The bill is dark above and pale below, as in *traillii* and unlike *sordidulus.* Its rictal bristles are intermediate between those of *traillii* and *sordidulus,* being not as fine as in the former, nor as strong and thick as in the latter species. The throat is mostly white with almost no yellow tinge. The white area is restricted posteriorly, and somewhat ill-defined due to the feathers being so worn that gray shows through from their bases. The color of the ear coverts and sides of the neck is gray-brown, nearly as in *sordidulus* (slightly less gray). There is a faint greenish tinge, much less evident than in Idaho specimens of *Empidonax traillii adastus.* The hind neck is gray-green, nearest that of *E. t. extimus,* but slightly grayer. Feathers of the crown are gray-green with dark brown centers and bases, about as in *traillii,* but with feather edges a trifle grayer and less greenish. Although crests are difficult to distinguish in some skins, the specimen exhibits a moderately well-defined crest, similar to that of *sordidulus* and not reduced as in *traillii.* Its eye-ring is narrow, intermediate between the broader ring of *traillii* and the very restricted one (visible microscopically) of *sordidulus.*

Color of Underparts: The hybrid's breast is dusky gray, with little indication of pale yellow in the feather edges. In this character the specimen does not show a close approach to *sordidulus;* however, it is grayer, and less brown and olive-yellow than in all *E. t. adastus* examined. The gray passes posteriorly to the sides more broadly than in *traillii.* The sides and flanks of the specimen are darker than in *traillii,* but not as dark as in *sordidulus.* The hybrid's belly is dull white with faint traces of dusky and a light yellow wash. Less yellow is shown than in all (even worn) *E. t. adastus* and *extimus* specimens examined. There is no distinct border between its belly and breast, for

all the dull white of the belly grades imperceptibly into the dusky gray of the breast. Generally, the specimen is thus grayer and duskier below and with less yellowish and white than *traillii*, but is not as dark as *sordidulus*. The undertail coverts are white with a faint yellow wash (matched by a few *traillii*), but lacking traces of the dusky coloring about the feather shafts typical of *sordidulus*.

Back Color: The back of the hybrid is grayish olive-brown, thus tending slightly toward *sordidulus*. The rump, especially, is grayer than in *traillii* and approaching *sordidulus*. Only two worn specimens of *E. t. extimus* and one of *E. t. adastus* match the hybrid in back and rump color.

Tail Color: The hybrid's tail is dark brown, nearly as dark as in some *sordidulus*, and somewhat darker than in *traillii*. Its outer rectrices have pale outer vanes as in *traillii*.

Tail Shape: The shape of the hybrid's tail is intermediate between the extremely notched tail of *sordidulus* and the rounded tail of *traillii*. In *sordidulus*, the innermost rectrix (No. 1) is much shorter than the outer one (No. 6). Rectrix 5 is usually the longest, and numbers 4, 3 and 2 sharply diminish in length toward number 1. Traill's flycatchers show no notch in the tail, or but a trace of one. Rectrix 1 is longer than number 6, and nearly as long as number 2, which is the longest rectrix in this species. Rectrices 3–5 diminish in length going outward toward number 6. The hybrid's tail is notched, but not as deeply as in *sordidulus*. Rectrix 1 is smaller than number 6, and rectrix 5 is the longest. However, since rectrix 1 is longer in the hybrid than in *sordidulus*, rectrices 2–4 gently increase in length outward toward number 5. The curve formed by the feather tips thus slopes gently as in *traillii*, but in the opposite direction (the rectrices increase, rather than decrease in length from number 2 to number 5).

Wing Color: The general coloration of the hybrid's wings is brown as in *traillii*, not sooty as in *sordidulus*. Its wing-bars are narrower than in *traillii* (especially the anterior bar). The color of the wingbars is dusky with some white and no yellow wash. In this respect the specimen is somewhat intermediate, but more like *traillii* than *sordidulus*.

Wing Shape: The hybrid's wings are intermediate in shape between the longer, more pointed wings of *sordidulus* and the shorter, more rounded wings of *traillii* (see Table 1). The tenth primary is usually longer than the sixth in *sordidulus*, while it is usually shorter than the fifth primary (may be the same size or slightly longer) in *traillii*. In the hybrid P 10 is a little shorter than P 6 and much longer than P 5.

Wing Edge: The small underwing coverts at the bend of the wing (= "wrist" of some authors) are yellowish white in *traillii*, with dark bases which occasionally extend far enough toward the feather tips to present a slightly mottled appearance. The same feathers are dark sooty brown with small buff or yellow-buff edges in *sordidulus*. The hybrid exhibits dull brownish feathers with some gray and buff traces, and with dark basal feather areas producing mottling. The hybrid is

TABLE 1.—Comparison of some characters of the hybrid with *Contopus sordidulus* and *Empidonax traillii**

	E. traillii		Hybrid	*C. sordidulus*	
	N	Range		*N*	Range
Character					
Wing length	100	67.5–76.5 mm	78.0 mm	88	80.1–91.6 mm
	(50	67.6–73.6 mm)			
Longest primary–P6	46	2.5– 7.0 mm	11.0 mm	50	11.5–15.5 mm
Tail length	94	55.0–63.9 mm	62.5 mm	88	59.2–71.3 mm
	(49	56.9–63.9 mm)			
Wing length–tail length	47	6.0–13.6 mm	15.5 mm	85	18.5–25.3 mm
Bill length	47	8.4–10.8 mm	8.9 mm	85	8.5–11.8 mm
Bill width	30	5.5– 6.7 mm	6.0 mm	40	6.3– 7.0 mm
Bill tip	Hook strongly joined at base to broadening mandible.		As *sordidulus*	Hook narrow at base, joining finely tapering mandible.	
Tarsal length	50	14.6–16.4 mm	14.5 mm	88	11.5–13.9 mm
Tail length / Wing length	49	0.81–0.89	0.80	87	0.72–0.79
Wing L.–tail L. / Tarsal length	47	0.37–0.88	1.07	85	1.32–2.16
Tarsal length / Wing length	50	0.21–0.24	0.185	79	0.14–0.17
Bend of wing	Yellowish–white		Dull, brownish	Dark brown	
Wing shape	Wing shorter, more rounded		Wing intermediate	Wing longer, more pointed	
Tail shape	Rounded		Notched	Strongly notched	

* All specimens presumed breeding males. *Contopus* from all over western U. S. and western Canada. Large ($N = 100$) wing and tail length sample for western *E. traillii* taken from Stein (1963, Proc. Amer. Phil. Soc., 107:21–50). Smaller *traillii* sample (45–50) comprised of breeding specimens of *E. t. adastus* and *E. t. extimus* in U. S. National Museum collection.

intermediate in this feature, and matches some *Contopus virens* specimens in the color of these underwing coverts.

Measurements: The western wood pewee and Traill's flycatcher overlap in bill length, bill depth and tail length, but not in wing length, difference between longest primary and P 6, wing length less tail length and tarsal length (Table 1). The hybrid is intermediate in all four measurements in which the two species show complete separation. Although there is overlap between these species in the first three measurements mentioned, the hybrid falls near the mean for *traillii* in each

character, and away from all but the extreme lower range of *sordidulus* (completely below *sordidulus'* range in bill width at nostril). The shape of the hybrid's bill hook is like that of *sordidulus* rather than *traillii* (Table 1).

Proportions: There was no overlap between *C. sordidulus* and *E. traillii* in three ratios which were utilized (Table 1). The hybrid is clearly intermediate in all three ratios.

Thus, the specimen is intermediate in a number of characters; it approaches *traillii* in some, and *sordidulus* in still other features. Thanks to the existence of certain clear-cut differences between these species, the general intermediacy of the specimen is apparent. It is evident that the specimen is a hybrid, and does not represent a rare, extreme variant of one or the other species.

Discussion

This instance of hybridization has implications in the taxonomy of these flycatchers. The fairly close relationship of the genera *Contopus* and *Empidonax* implied in our current classification (1957, A.O.U. Check-list, 5th Ed.) is upheld by this evidence that genomes of species in the two genera are sufficiently similar to allow production and survival (for nearly one year, at least) of an F^1 hybrid. A second point concerns possible intrageneric hybrids in *Contopus* and *Empidonax*. That two species belonging to different genera, with different habits occupying different habitats, can on occasion interbreed, suggests that *occasional* hybridization may occur between presumably more closely related species within each of these genera. Breakdown of isolating mechanisms between genetically more similar congeneric species generally ought to permit as frequent hybridization as that occurring between species of different genera, which are likely to differ genetically to a much greater degree. Taxonomists dealing with species (particularly those which are largely allopatric, and hence might have less effective isolating mechanisms) in these genera should watch for and critically appraise all extreme "variants" which are encountered, to ascertain whether these might be hybrids. This is not to say that intrageneric hybrids within the genera *Contopus* and *Empidonax* will prove to be common, but that they may at least occur.